

REVIEW OF THE DERMESTID BEETLE GENUS *CACCOLEPTUS*
WITH DESCRIPTION OF A NEW SPECIES FROM COLOMBIA
(COLEOPTERA)

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Abstract.—Adult and larval stages of *Caccoleptus wicki*, new species from Colombia, are described. A key is provided for the three species in the genus. The known geographic range of *C. anisotomoides* Sharp is extended from Honduras to Panamá.

Larvae and adults of an undescribed species within the dermestid beetle genus *Caccoleptus* have been found in northern Colombia preying on eggs and first-instar larvae of *Opsiphanes cassina* F., a nymphalid butterfly defoliator of banana plants. Because of the potential economic value of the species in biological control, it is important to name and describe it. No less important is the opportunity to restudy this little-known genus with a view to gaining a better understanding of its place in the family Dermestidae and of increasing our knowledge of the biology of the family.

The genus was described by David Sharp in 1902. No one appears to have worked on the genus since the appearance of Sharp's original study.

Recognition

Adult members of the genus may be recognized as dermestids by their compact shape, the small, deflexed head which is retracted into the prothorax, the presence of a median ocellus, and the shape of the hind coxa, which is grooved for the reception of the femur. Members of the genus, which falls within the tribe Megatomini (adopting the classification of Zhantiev, 1976), are easily distinguished from most other dermestids by their rotund shape, which gives them an appearance of tiny coccinellids. Other characters which appear to separate adults from other genera of the Megatomini are the following: The male antenna (observed only in *C. rotundus* Sharp) has an 8-segmented club (Fig. 1D); the female antennal club may be 4- or 5-segmented; the pronotum is margined laterally for its entire length, including the anterolateral angle; the antennal fossa occupies all of the hypomerion and is margined along its entire posterior side by a knife-like carina; the prosternum is relatively short with a broad or narrow posterior process; the short mesosternum is completely divided by a groove for the reception of the prosternal process with the pieces on either side of the groove much wider than long (Fig. 1E); the metasternum is strongly convex; the first visible abdominal segment has a single oblique stria on each side originating near the medial edge of the trochanter and

extending to the posterior margin of the segment. Sharp's statement that the scutellum is covered by the pronotal lobe is not entirely correct. In each of the species the scutellum is somewhat exposed, although in *C. rotundus* only a very small part of the apex is visible. The metathoracic wing (Fig. 1C) (adopting the terminology of Wallace and Fox, 1975) has a very short $A_{1a} + A_{1b_1}$ (designated as the postcubitus by Beal, 1967, for species of *Megatoma*), an unbranched vein formed from A_{1b_2} (designated as first vannal vein by Beal), and a single vein formed from $A_{1b_3} + A_{1c} + A_2$ (designated as second vannal by Beal). Vein A_3 is absent. Vein A_4 (jugal vein) is very faint, if it is present at all.

The larval stages are known only for *C. wicki*. Mature larvae of this species are easily recognized as belonging to the tribe Megatomini by the presence of hastisetae (spear-headed setae) inserted on the nota and terga. They are readily distinguished from known larvae of all other genera of Megatomini by each of the following characters: (1) the reduced width of the first abdominal segment, which is about $\frac{7}{8}$ as wide as either the metathoracic notum or the tergum of abdominal segment 2 (Fig. 2F); (2) the absence of an antecostal suture on any of the nota or terga; (3) the absence of spicisetae on both the anterior part of the abdominal terga (the region that probably should be considered the acrotergite) and along the posterior margin of the terga (Fig. 2F); (4) the elongated shape of the accessory papilla at the apex of the second segment of the antenna (Fig. 2D).

Systematic Position

Both larval and adult characters appear to associate this genus with *Phradonoma* and *Trogoderma*. The fact that in the larvae none of the hastisetae are inserted on the membrane behind any of the abdominal terga but are all inserted on sclerotized areas of the terga places the genus in a group with *Trogoderma*, *Phradonoma*, *Globicornis*, *Megatoma*, and *Reesa*. A specialization found in *Anthrenus*, *Thaumaglossa*, *Cryptorhopalum*, and *Ctesias*, which separates them as a group, is that all have a large cluster of hastisetae inserted on the membrane on each side behind one or more of the abdominal terga. The position of *Caccoleptus* with respect to each genus in the former group is a little less obvious, but it seems to have originated from a stem common to *Phradonoma* and *Trogoderma*. Each of these has the distal group of papillae on the epipharynx enclosed in one or more rings rather than in the center of a callosity (Ford and Kingsolver, 1966). As is true of *Phradonoma tricolor* (Arrow), the distal group of papillae on the epipharynx are divided into a group of four and a group of two papillae and are enclosed in two rather than in a single ring. It also has the setae at the apex of the pretarsus greatly unequal in length in common with most *Trogoderma* rather than equal in length as is

true of *Globicornis*, *Megatoma* and *Reesa*. In the case of adults, the shape of the antennal fossa, enclosed behind by a knife-like carina, is characteristic of *Trogoderma*. The 8-segmented club of the male antenna is also much more like *Trogoderma* than like the 1- to 3-segmented club of the latter group. Nonetheless, the specializations found in *Caccoleptus*, particularly in the larval stages, clearly warrant its separation from *Trogoderma*.

Type of the Genus

The type of the genus is *Caccoleptus rotundus* Sharp by original designation.

Key to Species of Adult *Caccoleptus*

1. Integument of elytra dark mahogany brown to piceous with broad ochreous or reddish submedian and subapical bands; submedian band usually with extension along median suture to base. Dorsal pubescence of dark brown to piceous and light golden hairs. Golden hairs on elytra forming broad bands coincident with light maculate areas. Prosternal process broad, as wide as $2\times$ width of front tibia at level of hind margin of front coxa *wicki*, new species
- Dorsal integument immaculate, yellowish brown to mahogany brown. Dorsal pubescence of white hairs and light to dark golden-brown hairs. Elytra transversed by narrow bands of white pubescence. Prosternal process narrow, no wider than front tibia at level of hind margin of front coxa 2
2. White hairs of elytron forming small basal patch, narrow, more or less continuous submedian band, and narrow subapical band; white hairs somewhat ensiform but not more than $1\frac{1}{2}\times$ as wide as golden-brown hairs *rotundus* Sharp
- White hairs of elytron forming small basal patch near scutellum, subbasal patch near humerus, narrow, interrupted submedian band, narrow interrupted subapical band, and apical patch; white hairs ensiform, about $2\times$ as wide as golden-brown hairs and tending to form clusters with strikingly white appearance *anisotomoides* Sharp

Caccoleptus rotundus Sharp

Caccoleptus rotundus Sharp, 1902:650.

The type-locality for this species is Panamá. An additional male specimen in the U.S. National Museum of Natural History is from El Cermeno, Panamá, July to August, 1941 (J. Zetek). A label on the specimen states that it was collected "ex fruit of *Labatia standleyana* Pittier."

Caccoleptus anisotomoides Sharp*Caccoleptus anisotomoides* Sharp, 1902:650.

The type-locality is Rio Hondo, British Honduras. Two female specimens are deposited in the U.S. National Museum of Natural History, one from Panama City, Panamá (no date, E. A. Schwarz), and one from Pedro Miguel, Canal Zone, Panamá, 17 April 1911 (E. A. Schwarz).

Caccoleptus wicki Beal, new species

Adult female.—Habitus as illustrated (Fig. 1A). Dorsal pubescence sub-recumbent, bicolorous with light golden and piceous hairs; no ensiform setae present. Head with integument reddish brown on frons, piceous on vertex. Ratio of width across compound eyes to interocular distance 43:26. Punctures of vertex simple, equal in diameter to diameter of facet of compound eye, separated by 1–4× diameter of single puncture. Antenna ochreous with 4-segmented club as illustrated (Fig. 1B). Pronotum with integument reddish; light colored hairs forming transverse subapical band and basal band; punctation of disc similar to that of vertex of head. Elytra with integument piceous with broad median and apical ochreous bands; light colored setae of elytra distributed on light colored bands of integument and in addition forming narrow band along base just posterior to sides of pronotal process and forming line from base along median suture to median band. Ventral surfaces with recumbent, light golden setae; integument of thoracic sterna piceous; integument of abdominal sterna reddish brown with black margin on first 4 sterna. Prosternal process broad (Fig. 1E). Mesosternum strongly transverse (Fig. 1E). Legs ochreous. Ratio of width (measured across humeri) to length (of pronotum and elytra combined) 1:1.39. Length (of pronotum and elytra) 1.66 mm.

Range of observed variations: Color of bands on elytra varying from ochreous to brick red; median band frequently produced anteriorly to base and often expanded at base to form short band as wide as pronotal process. Visible abdominal sterna 1–4 usually black with sternum 5 reddish. Ratio of width to length varying from 1:1.35 to 1:1.49. Length ranging from 1.60 mm to 1.82 mm.

Mature larvae.—Color of nota and terga dusky; sterna and legs hyaline. Dorsal spicisetae long, some on lateral margins of nota $\frac{1}{3}$ longer than width of notum; hastisetae with apex as illustrated (Fig. 2E); hairs of caudal brush long, some $\frac{1}{3}$ longer than body length. Antenna as illustrated (Fig. 2D); segment 1 bearing 1 or no setae; segment 2 without setae; accessory papilla long. Epipharynx (Fig. 2B) with setae of middle setal series at margin equally narrow; lateral setae at margin spatulate, short; distal sensory papillae clustered in 2 margined groups with 4 papillae in an-

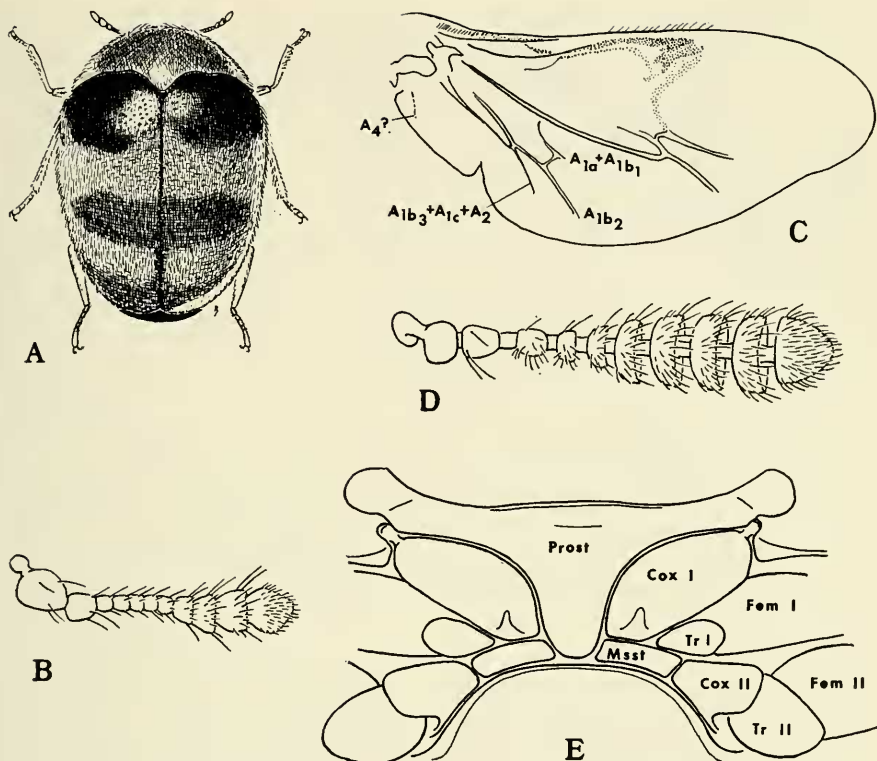


Fig. 1. Adult characters of species of *Caccoleptus*. A, dorsal aspect of *C. wicki*; B, female antenna of *C. wicki*; C, metathoracic wing of *C. wicki*; D, male antenna of *C. rotundus*; E, thoracic sterna of *C. wicki* (Cox = coxa, Fem = femur, Msst = mesosternum, Prost = prosternum, Tr = trochanter).

terior and 2 papillae in posterior group; cluster not enclosed by callosity; 6 sensory cups in proximal row. Maxilla as illustrated (Fig. 2A); terminal segment of palp relatively broad. Labial palp with single seta inserted on ventral side of segment 1, none on segments 2 or 3; 2-3 ensiform setae inserted at apex of each lobe of ligula. Mandible with fringed prostheca and 6-8 lateral setae. Tergum of abdominal segment 1 about $\frac{7}{8}$ as wide as metathoracic notum or tergum of abdominal segment 2; antecostal suture lacking (on all nota and terga as well); no spicisetae inserted on acrotergite or on tergite anterior to median row of large spicisetae; no spicisetae inserted along posterior margin of tergum; hastisetae inserted entire width of tergum in row posterior to median row of spicisetae (Fig. 2F). No hastisetae inserted on membrane behind any abdominal tergum (all inserted on sclerotized part of tergum). Tergum of abdominal segment 9 bearing

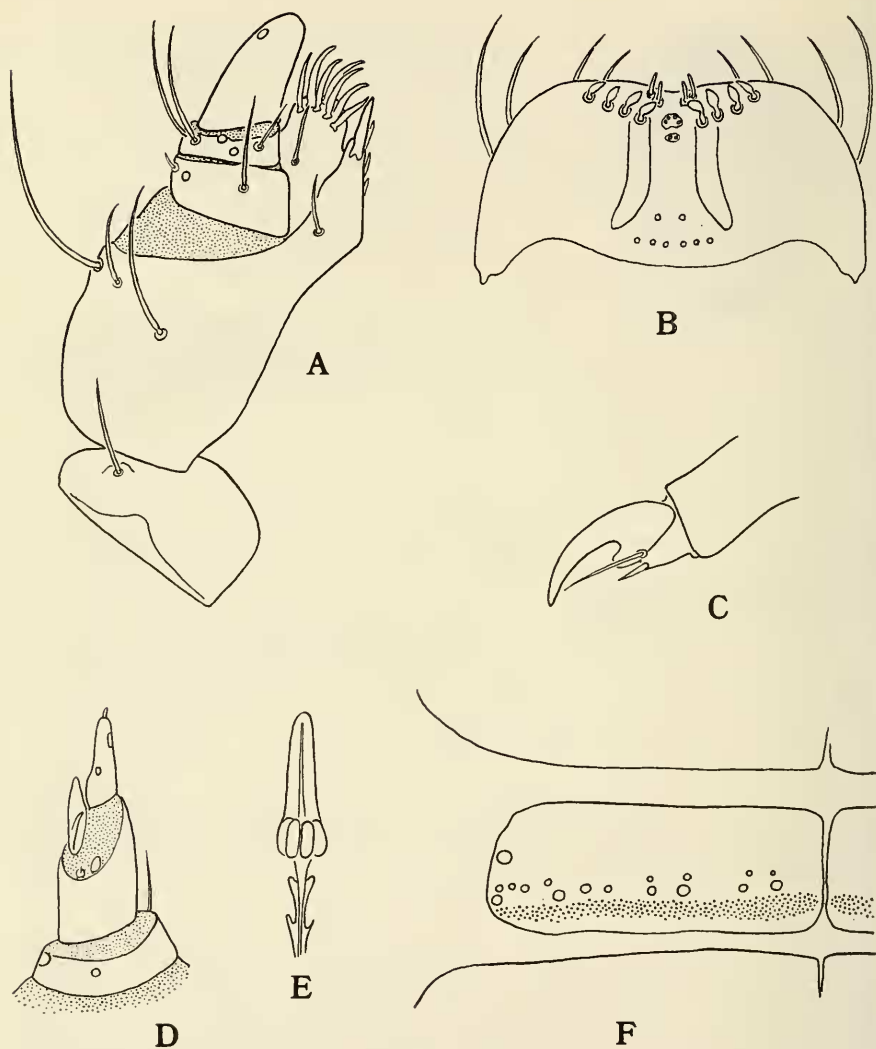


Fig. 2. Larval characters of *C. wicki*. A, maxilla, ventral aspect; B, epipharynx and labral margin; C, pretarsus of mesothoracic leg; D, antenna; E, head of hastiseta from tergum of abdominal segment 2; F, left half of tergum of abdominal segment 1 showing size relative to widths of metathoracic notum and tergum of abdominal segment 2 (circles represent sockets for insertion of spicisetae, size of the socket roughly proportional to size of seta; dots represent points of insertion of hastisetae).

long spicisetae forming terminal brush. Pretarsus as illustrated (Fig. 2C); anterior terminal seta $2\times$ as long as posterior.

Pupa.—Abdominal segments lacking gin-traps.

Holotype ♀ and 13 ♀ *paratypes*.—El Zulia (10 kilometers northwest of Cúcuta), Santander del Norte, Colombia, 2 July 1976 (A. López).

Other paratypes.—1 ♀, Botanical Gardens, Georgetown, British Guiana, 26 September 1918 (Harold Morrison); 1 ♀, Barro Colorado Island, Canal Zone, Panamá, April–May, 1942. Holotype deposited in the collection of the U.S. National Museum of Natural History. Paratypes deposited in the collections of the U.S. National Museum of Natural History, the British Museum (Natural History), the Natural History Museum, Los Angeles County, the California Academy of Sciences, and the collection of the author.

The color of the integument and setal characters given in the key readily separate adults of this species from the two previously described species in the genus. In addition, the single male of *C. rotundus* available for study has unusually prominent compound eyes. Whether this is a sexual character common to males of all species (assuming there are males of *C. anisotomoides* and *C. wicki*) or a distinguishing character of *C. rotundus* is not known.

At the present, no males are known for *C. wicki* or *C. anisotomoides*. This seems a little unusual, since a moderate series of *C. wicki* has been collected. It suggests the possibility that *C. wicki* may reproduce parthenogenetically, a trait found in the somewhat closely related genus *Reesa*.

Etymology.—This species is named for Dr. J. R. Wick, Chairman of the Department of Biological Sciences, Northern Arizona University, in recognition of his faithful and effective leadership in the field of biological education.

Acknowledgments

I wish to thank F. Lance Wallace for his assistance in interpreting the wing venation of *C. wicki*. I am especially grateful to Dr. John M. Kingsolver, Systematic Entomology Laboratory, IIBIII, Fed. Res., Sci. Educ. Admin., USDA, for arranging the loan of the specimens used in this study and for a critical reading of the manuscript. I thank Dr. Jose Cuatrecasas for help with the manuscript.

Sumario

Adultos y larvas de una especie nueva de los alrededores de Cúcuta, Colombia, llamada *Caccolleptus wicki*, se han encontrado atacando huevos y larvas de *Opsiphanes cassina* F. en la primera etapa de su desarrollo post-embrionario. Como es sabido este es un en la defoliación del bananero. La especie se diferencia de *C. rotundus* y *C. anisotomoides* por la presencia

en el integumento del élitro de franjas submedianas y subapicales ligeramente coloreadas. En las otras dos especies de *Caccoleptus*, las franjas del élitro están formadas por pelos ligeramente coloreados pero el integumento permanece immaculado. La larva de *C. wicki* se puede diferenciar de la larva de otro género de Megatomini por la anchura reducida del primer tergo abdominal y por la alargada papila complementaria del segundo segmento de la antena.

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